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INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

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A List of the Mollusca hitherto found in the Province of Moray and in the Moray Firth. By the Rev. GEORGE GORDON.

(Concluded from page 4435).

Gasteropoda Pulmonifera.

Common large Black Slug or Snail, *Arion empiricorum*, (*A. ater*, Mac.) Abundant.

Garden Arion, *Arion hortensis*. Has been met with in several localities, and a species probably generally dispersed throughout the district. Manse garden at Birnie; near Mill of Birnie; wood at Main. Mr. Martin has found it at Foresterseat. An Arion not unfrequent in the moist grassy upland cultivated parts of Moray, a specimen of which was sent to Mr. Hancock and seen by Mr. Alder, is considered by these gentlemen to be the variety of A. hortensis noticed in the 'Catalogue of Northumberland and Durham Mollusca.'

Field Slug, *Limax agrestis*. Very abundant.

Spotted Gray Slug, *Limax cinereus*. Occasionally met with in gardens and in deep shady ravines.

Tree Slug, *Limax arborum*, (*L. marginatus*, Mac.) At Birnie, 1853, among leaves fallen from lime trees.

Cellar or Yellow Slug, *Limax flavus*, (*L. variegatus*, Mac.) Although a specimen of this slug has not been compared with the description in Messrs. Forbes and Hanley's work, yet it is believed that it is occasionally to be found in cellars and in other damp half-sunk apartments, both in the country and in the county towns of the Province of Moray.

Little Brown Slug, *Limax brunneus*. This species is probably more generally dispersed than naturalists have hitherto been aware of. It is not uncommon in the district comprehended in this list. At some places, as at the escarpment of red conglomerate, near Mill of Birnie it is to be found, of a damp warm evening, in abundance. Mr. Macdonald remarks that this little slug is the most lively and fearless of its tribe. When disturbed, instead of contracting itself into a lump, like most of its congeners, it makes bold and repeated efforts to escape from the annoyance.

Green Glassy Snail, *Vitrina pellucida*. Common.

Cellar Zone-shell, *Zonites cellarius*, (*Helix nitida*, Flem.) Under stones at the fish-beds at Dipple, *Mr. Martin;* Bridge of Divie near Relugas, and at the old castle of Dunphail, *Mr. J. Shand.*

BRITISH MUSEUM

Garlic-scented Zone-shell, *Zonites alliarius.* Very common.

Nitidulous Zone-shell, *Zonites nitidulus.* Near Cothall on the Findhorn, *Mr. Martin;* old castles of Spynie, Duffus, Dunphail and Burgie, and Bridge of Daltilich, *Mr. J. Shand.*

Clear Zone-shell, *Zonites purus.* Among damp moss near Relugas, and woods at Grange near Kinloss, *Mr. J. Shand.*

Minute Striated Zone-shell, *Zonites radiatulus.* Avenue leading from Barmuckity to Foresterseat, and in the Oakwood near Elgin, *Mr. Martin;* abundant in damp moss in many localities, *Mr. Macdonald.*

Lucid or Shining Zone-shell, *Zonites nitidus,* (*Z. lucidus,* Mac.) Near Foresterseat, *Mr. Martin.*

Crystalline Zone-shell, *Zonites crystallinus.* Frequent. Among moss, Teethill Wood, *Mr. Martin;* Dunphail, Relugas, Bridge of Daltilich and wood at Grange, *Mr. J. Shand.*

Spotted Garden Snail-shell, *Helix aspersa.* Abundant in gardens at Elgin, particularly on the north side of the town. At Lossiemouth and in other localities of the Province.

Single-banded Snail-shell, *Helix arbustorum.* Near Duncow's Loup on the Lossie, and also on the Findhorn, *Mr. Martin;* near old castle of Dunphail, *Mr. J. Shand.*

Common Garden Snail-shell, *Helix nemoralis,* (*H. hortensis,* Flem. and Mac.) Common, particularly about limestone dykes or quarries. Mr. Martin remarks, "there is a peculiarity in the history of H. nemoralis that I cannot account for. In some seasons they appear in countless numbers, while in others a few only are found here and there. I remember one day walking along the links, east of Burghead, and seeing the ground covered with them, so much so that it was difficult to move a step without crushing some of them. I have visited that locality several times since, and the most that I could obtain did not amount to a dozen. I remarked a similar occurrence at Spynie. One day after a summer shower the stone dyke around the Spynie plantation was covered thickly with them, but ever since I have not found a single specimen there, although I have visited the place often after a summer shower. What had become of them?" The late Sir Thomas Dick Lauder, in his very graphic account of the Moray Floods of 1829, states that he found the empty and decayed shells of this species at so high a level above the sea as the calc-tuffa beds of Inchrory on the Avon, Banffshire, and supposed that it had become extinct there from some deterioration of the climate. This interesting spot was visited the next year, and many were found alive, some of which were forwarded to the learned Baronet, who at once allowed that his theory was no longer tenable. The celebrated bank at Inchrory is of far purer lime than any marl, being a solution made by the water percolating the limestone beds, and deposited in the form of calc-tuffa as soon as it emerges to the surface. Its origin therefore cannot be, as Sir Thomas affirmed, "the exuviæ of aquatic Helices." Mr. Macdonald finds the variety hortensis the most common form, but has also collected the typical nemoralis as well as the variety hybrida at Burghead.

Wrinkled Snail-shell, *Helix caperata.* Abundant on stone dykes at Inverugie, and near Lesmurdie cottage, *Mr. Martin;* at and around Burghead, *Mr. Murray;* near Gray's Hospital, and between Bishopmill and Oakwood, *Mr. Macdonald.*

Silken Snail-shell, *Helix sericea,* (*H. hispida,* Flem.) Near Cothall, on the Findhorn, *Mr. Martin;* old castle of Dunphail, *Mr. J. Shand.*

Pyramidal Snail-shell, *Helix fulva,* (*H. Trochilus,* Mac. and Flem.) Among leaves on the banks of the Findhorn, near Foresterseat, and in an old quarry in the wood of Main, *Mr. Martin;* Burghead, *Mr. Murray;* Lesmurdie cottage, &c., *Mr. Macdonald.*

Little White Snail-shell, *Helix pulchella,* (*H. costata,* Flem.) Abundant, but local. Near Lesmurdie cottage, *Mr. Martin;* Burghead, *Mr. Murray.*

Radiated Snail-shell, *Helix rotundata,* (*H. Turtoni,* Flem., *Zonites rotundatus,* Mac.) At the old castles of Spynie and Duffus, *Mr. Martin;* Burghead, *Mr. Murray;* Kinloss Abbey, and also near Oakwood Elgin, *Mr. Macdonald.*

Sharp-pointed Bulimus, *Bulimus acutus.* It is not without some hesitation that this pretty species is here included. It was observed in rather a suspicious locality, a mantel-piece, to form a considerable portion of shells almost wholly native, and collected on the Caithness coast near Duncansbay head, and presented to the Rev. James Leslie, of Burghead. As it is found plentifully in some parts of Skye, near the sea, the probable Caithness locality cannot be objected to as too northerly a range for this shell.

Lustreless Bulimus, *Bulimus obscurus.* Rather rare. At Boghole on the Brodie burn, and at Cothall on the Findhorn, *Mr. Martin;* old castle of Dunphail, *Mr. Macdonald.*

Umbilicated Chrysalis-Snail, *Pupa umbilicata,* (*P. muscorum,* Flem.) Common. "Particularly abundant among the ruins of the bridge, at the south end of the avenue leading from Barmuckity to

Foresterseat, the rivulet being well known to many of his friends as the Rubicon of the late Mr. Leslie, of St. Andrews, Lhanbryde," *Mr. Martin.*

Margined Chrysalis-Snail, *Pupa muscorum*, (*P. marginata*, Flem. and Mac.) Abundant near the sea among moss and under stones, *Mr. Martin;* on the top of an isolated rock, washed by the sea at Cummingston, among the roots and decayed leaves of Elymus arenarius.

Toothless Chrysalis-Snail, *Pupa edentula*, (*Vertigo edentula*, Mac.) Rare. Kirkhill wood, *Mr. Martin;* wood near Lesmurdie cottage, *Mr. Macdonald;* Dunphail, Grange, and Milton-Brodie, *Mr. J. Shand.*

Pigmy Chrysalis-Snail, *Pupa pygmæa.* Rare. Two specimens have been found by Mr. J. Shand, under stones, near the old castle of Dunphail.

Marsh Chrysalis-Snail, *Pupa antivertigo.* Rare. Marshy ground opposite the gate of Lesmurdie cottage, *Mr. Macdonald.*

Reversed Balea, *Balea fragilis*, (*B. perversa*, Flem. and Mac.) Agatey rock at the back of Stotfield, *Mr. Martin.*

Dusky Clausilia, *Clausilia nigricans*, (*C. perversa*, Flem.) Plentiful at Craigellachie Bridge, *Mr. Martin;* Burghead, *Mr. Murray.*

Glossy Zua, *Zua lubrica*, (*Bulimus lubrica*, Flem. and Mac.) Generally dispersed and abundant. Sheriffston, Main, Linksfield, &c., *Mr. Martin;* Mr. Murray finds it frequently in the neighbourhood of Burghead.

Oval Amber-shell, *Succinea putris.* In pools and ditches at Waterymains, and at the north side of Innes House, *Mr. Martin;* Tyock, *Mr. Macdonald.*

Ferruginous Bubble-shell, *Physa hypnorum*, (*Aplexa hypnorum*, Flem.) Pools at Foresterseat, and on the north of Innes House, *Mr. Martin.*

Bristly or White Coil-shell, *Planorbis albus.* Burn of Outlet, *Mr. Macdonald.*

Smooth Coil-shell, *Planorbis glaber.* Canal near Lochside Tileworks, *Mr. Martin;* ditch on the farm of Inverlochty, *Mr. Macdonald.*

Nautilus Coil-shell, *Planorbis Nautileus*, (*P. imbricatus*, Mac.) Rare. Ditch on the farm of Inverlochty, *Mr. Macdonald;* more plentiful in a small pool in a damp plantation south-east from the Manse of Duffus, *Mr. Murray.*

Round-edged Flat Coil-shell, *Planorbis spirorbis*, (*P. vortex*, var. β., Mac.) Common in ditches, &c. around the Loch of Spynie, and throughout "the featureless flat" (Duffus).

Contorted Coil-shell, *Planorbis contortus.* In the same localities as the last species.

Shining Lenticular Coil-shell, *Planorbis nitidus.* In canals and ditches around the Loch of Spynie; Order Pot, *Mr. Martin;* near Lesmurdie Cottage, *Mr. Macdonald.*

Wandering Mud-shell, *Limnæus pereger,* (*Lymnea lutea* and *L. limosa,* Flem.) Very common. Mr. Martin states that he has often been amused in watching the movements of this species in the old canal north of Inchbroom, when hundreds of these creatures were seen sailing from one end of the canal to the other, foot uppermost. Their wandering propensities were always exhibited when they had the advantage of a favourable wind, and when the wind was westerly those that were at the west end made a voyage to the eastward; and again, when the wind changed, a large body of them were seen returning. What their motives were in this movement it is difficult to say,—whether in quest of food, on visits of friendship, or on pleasure excursions. When they had fairly started on their voyage they resembled a fleet of herring-boats in miniature. The shells of L. pereger in this canal, adds Mr. Martin, are larger than any that he has seen in the North.

Little Mud-shell, *Limnæus truncatulus,* (*L. fossaria,* Flem.) Frequent. Linksfield, and in pools near Loch of Cotts, *Mr. Martin;* Burn of Outlet, west from Burghead, with L. pereger, *Mr. Murray.*

Marsh Mud-shell, *Limnæus palustris.* In ditches near the north gate of Innes House, *Mr. Martin;* in a small grassy puddle between Burghead and Cummingston, *Mr. Murray;* ditch near Castle of Spynie, *Mr. Macdonald.*

Oval Lid-shell, *Ancylus fluviatilis.* Burn of Forres and Burn of Lhanbryde, where large varieties are found, *Mr. Martin;* Linkwood Burn and in the Lossie, *Mr. Murray.*

Small Carychium, *Carychium minimum.* Abundant among leaves near Darnaway Castle, and at the Teethill Wood, *Mr. Martin;* marsh below Lesmurdie Cottage, and near Allarburn, *Mr. Macdonald;* Relugas and Dunphail, *Mr. J. Shand.*

Cephalopoda dibranchiata.

Pennant's Cuttle-fish, *Eledone cirrhosus,* (*Octopus octopodia,* Flem.; *E. Pennantii,* Mac.) One partially mutilated, but retaining sufficient distinctive marks, found on the shore at Stotfield, January 20th, 1854.

Rondeletius' Little Cuttle-fish, *Sepiola Rondeletii.* Several specimens of small cuttle-fish have of late years been found in different parts of the Moray Firth, and a few have been taken from the stomach of the haddock; but all of them seem to agree with the description of this species, as given by Messrs. Forbes and Hanley, and show no difference in the arrangement of the suckers in the lower pair of arms.

Common Cuttle-fish, *Loligo vulgaris.* This is by far the most common of the larger Teuthidæ that are found on the Elginshire coast, where it is not unfrequent, particularly towards the end of summer. Occasionally numbers of them are found enclosed in the salmon-nets. The fishermen know them well by the name of "Troolians."

Middle-sized Cuttle-fish, *Loligo media.* "Has recently been caught at Peterhead, on the east coast of Scotland, by Mr. Peach," *F. & H.*

Officinal Cuttle-fish, *Sepia officinalis.* As in many other localities, the few cuttle bones picked up at different times on the shore, form all the evidence that can as yet be adduced to show that this species, "one of the most beautiful and curious of British mollusks," inhabits the waters of the Moray Firth. As intimately connected with the subject of this paper the following notice is quoted from page 3864: "I beg leave to place on record, through the pages of your journal, the capture of Onychoteuthis Banksii, *Leach*, at Banff, N. B.—*John Rose, M.D.R.N., Haslar Hospital, Gosport, March* 14, 1852."

Additional Species.

Minute Turtonia, *Turtonia minuta.* This small shell has been lately discovered by Mr. Macdonald to be not unfrequent between tide-marks at Burghead. It has also been found among shell-sand from Caithness.

Four-angled Arca, *Arca tetragona.* A few valves have been taken from the Caithness shell-sand. (The reference made to this species in Zool. 4316 may be deleted).

Smooth Cæcum, *Cæcum glabrum*, (*Cæcalium glabrum*, Mac.) "Several specimens among small shells sent (to Dr. Macgillivray) by Mr. Alexander Murray, who found them at Fraserburgh," *Mollusca of Aberdeenshire*, p. 39.

Additional Localities, &c.

Since the first part of this list was printed several specimens of Circe minima, along with one of Astarte triangularis, have been found in shell-sand from Caithness.

In place of one, as stated (Zool. 4435), Mr. Murray found several specimens of Cenia Cocksii, on Algæ, that were gathered between tide-marks, and put into a small vivarium. These rare mollusks were first observed while crawling up the sides of the glass vessel. Mr. Macdonald, to whom they were sent in the first instance, forwarded them to Mr. Hancock, who obligingly named them.

Mr. Macdonald has lately obtained several specimens of Eolis nana at Burghead, on shells and zoophytes from deep water.

Tritonia plebeia has also been got by him in great abundance, on Alcyonium digitatum, dredged off Lossiemouth.

The following table will exhibit a comparison between this district and some others where the molluscous tribes have been examined and the result published. The first column (B.) contains the numbers in the 'History of British Mollusca,' by Messrs. Forbes and Hanley, as given by Mr. Templer (Zool. 3992). The second column (M.) contains the number of species hitherto discovered in the Firth and Province of Moray. The third column (A.) contains the numbers of those species of Dr. Macgillivray's 'Mollusca of Aberdeenshire, &c.', that remain after the doubtful and spurious species, so called by Messrs. Forbes and Hanley, have been excluded. The fourth column (N.) is made up from Mr. Alder's 'Catalogue of the Northumberland and Durham Mollusca.' And the last column (D.) from Mr. Walpole's papers on the Dublin Mollusca (Zool. 4022 and 4101).

		B.	M.	A.	N.	D.
I.	Acephala tunicata.	75	6	4	30	
II.	Acephala lamellibranchiata. . . .	181	97	88	108	101
III.	Acephala palliobranchiata (Brachipoda)	5	1		1	
IV.	Pteropoda.	4	1			
V.	Gasteropoda prosobranchiata. . .	221	89	72	110	70
VI.	Gasteropoda opisthobranchiata. . .	113	43	18	59	8
VII.	Pulmonifera.	101	46	44*	80	50
VIII.	Cephalopoda.	14	5	4	6	
	Sum of species...	714	288	230	394	229

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* Including Carychium minimum (see Mr. Taylor's list, Zool. 3880), and also "var. B." of Planorbis vortex, viz., spirorbis, as a distinct species.

The following species have been found in the Firth and Province of Moray, but are not in the 'Mollusca of Aberdeenshire,' viz.:— I. Botryllus Schlosseri, Ascidia sordida, Molgula arenosa, Pelonaia corrugata. II. Psammobia Tellinella, Tellina Balaustina, T. Donacina, T. pygmæa, Astarte arctica, Cardium nodosum, C. Suecicum, Nucula nitida, Arca tetragona, Pecten striatus, Turtonia minuta. III. Crania anomala. IV. Spirialis Flemingii. V. Chiton Hanleyii, C. ruber, C. albus, C. marmoreus, Acmæa testudinalis, Pilidium fulvum, Fissurella reticulata, Trochus alabastrum, T. undulatus, Lacuna puteolus, L. crassior, Rissoa Zetlandica, R. Beanii, Skenea rota, Cerithium adversum, Scalaria Trevelyana, Aclis nitidissima, Chemnitzia fulvocincta, C. indistincta, Odostomia cylindrica, O. decussata, Eulimella Scillæ, E. acicula, Natica sordida, N. Helicoides, Lamellaria perspicua, Fusus propinquus, Mangelia nebula, M. brachystoma, M. costata, Marginella lævis. VI. Akera bullata, Scaphander lignarius, Aplysia hybrida, and twenty-six species of Nudibranchs. VII. Arion hortensis, Limax brunneus, Helix sericea, Bulimus acutus, Pupa pygmæa, P. antivertigo, Physa hypnorum, Planorbis glabra, P. nitidus. VIII. Loligo media.

The following species, described by Dr. Macgillivray, have not been found in the Firth or Province of Moray, viz.: — II. Syndosmya tenue (Amphidesma tenue), S. alba (Amphidesma album), Kellia nitida (Lepton nitidum), Cardium pygmæum (C. exiguum), Lucina leucoma, Pisidium amnicum. V. Bithinia tentaculata (most likely introduced), Buccinum Dalei (Halia Flemingii), Cæcum trachea (Cæcalium trachea), Lachesis minima, (Buccinum minimum, most likely introduced), Rissoa vitrea, Rissoa ventrosa, Odostomia insculpta, O. plicata, Truncatella Montagui (Eulima nitidissima), Chemnitzia elegantissima (Eulima elegantissima). VI. Philine catena (Bulla catena). VII. Planorbis vortex, Physa fontinalis, Helix fusca (Zonites fusca), Helix pygmæa (Zonites pygmæa), Helix aculeata, H. lamellata, H. hispida. Such is the relation, so far as is known, of two northern and neighbouring districts. By future researches these now somewhat numerous lists will be diminished gradually, until a catalogue of the land and marine Mollusca of Aberdeen become almost equivalent to that of Moray. The same sea washes both shores; and the soil, the situation, or the climate of the one district does not differ so much from that of the other as to lead one to expect that the difference of Fauna indicated by these lists will long continue so marked as it now appears.

The present difference, however, between the Molluscous Fauna of Dublin and of Moray, as shown by the next two lists, will probably get more marked than otherwise, as these two so widely separated localities continue to be explored by naturalists.

Species not uncommon in the neighbourhood of Dublin, but rare or not found at all in the Firth or Province of Moray, viz.:—Solen marginatus, Syndosmya alba, Lepton squarrosum, Ostrea edulis, Trochus umbilicatus, Phasianella pulla, Rissoa inconspicua, Cerethium reticulatum, Scalaria communis, Chemnitzia elegantissima, Murex erinaceus, Nassa reticulata, Trophon muricatus, Mangelia costata, Philine aperta.

Species that are rare or that are not found at Dublin, but not uncommon in Moray, viz.:—Cochlodesma prætenue, Kellia rubra, Unio margaritiferus, Anadonta cygnea, Leda caudata, Pinna pectinata, Trochus Helicinus, Littorina neritoides, Rissoa punctura, R. rubra, Skenea planorbis, Natica Montagui, Cylichna cylindracea, C. truncata, Bulla Cranchii, Philine scabra, Aplysia hybrida.

Specimens, collected from the Firth and Province of Moray, of all the testaceous species enumerated in this paper, are now placed in the Elgin Museum, except the following, viz.:—Tellina Donacina, Nucula nucleus, Pecten varius, Crania anomala, Spirialis Flemingii, Chiton Hanleyii, Pisidium fulvum, Puncturella Noachina, Cæcum glabrum, Eulimella Scillæ, and Akera bullata. Most of these eleven are rare in any locality, but specially so in the Moray Firth. It is hoped, then, that those who have it in their power to supply local specimens of any of these desiderata will do so, and the more readily, when they know that their valuable donations go not to enhance any private, but to complete a public collection, open to the stranger interested in such pursuits, as well as to the resident student of the provincial zoology. It need scarcely be here added that another boon would be conferred by the gift of specimens of, or information regarding other mollusks, whether testaceous or not, that have been observed in the Province or Firth of Moray, but which are not recorded in this paper as denizens of the district.

An earlier opportunity should have been taken than at the close of this paper, gratefully to acknowledge the assistance so obligingly given during its compilation, by Robert McAndrew, Esq., of Liverpool. Though late, this acknowledgment, however, is not the less heartily offered now. By his successful researches much new and important light has been thrown on the distribution of the European Mollusca generally; but the North of Scotland, where it is believed he first acquired a taste for this study, has been in this respect peculiarly indebted to him. His experience among the northern forms and species enabled him to identify and name the various specimens submitted to him, while his readiness and kindness in replying to the many queries put to him enhanced the valuable information he communicated.

Corrections.

As the author of this paper had not the opportunity of correcting the proof sheets, several errors have crept into the text. A few of the more important may be thus corrected, viz.:—

Page 4302, lines 21 and 22, *for* four *read* two, *and dele* Lacuna puteolus *and* Mangelia turricola.
„ 4303, line 10, *dele* and Trochus undulatus.
„ 4310, line 34, *for* Circe *read* Venus.
„ 4313, line 26, *for* Donovan *read* Doveran.
„ 4316, line 37, *place a period after* Elgin Museum.
„ 4317, line 11, *place a period after* Buckie, *deleting the comma.*
„ 4318, line 22, *for* Spiralis, *read* Spirialis.

GEORGE GORDON.

Birnie, by Elgin, N. B.
September, 1854.

Some Remarks on the Marine Fauna of the South of Devon.

By WILLIAM F. TEMPLER, Esq.

LONG and constant observation of the Natural History of a county is necessary to produce anything like a complete Fauna, and there are few men to whose lot it falls to be equally well acquainted with all branches of so extensive a pursuit. During many years acquaintance with the south-western counties of England I have become familiar with their coasts, their rivers and estuaries, and their productions, from the mussel, attached to the sea-beaten rock by its strong byssus, to the small Rissoa, quietly passing its life in the retirement of some small nook beneath a stone in some warm rock-pool.

The coast of Devonshire, from the days of Montagu and Turton down to its numerous ardent collectors of the present day, has always been famous for the richness of its marine Fauna, which, owing to the labours of its numerous and energetic naturalists, receives annual additions to its already extensive list. During two years' residence at the small and pretty watering-place of Budleigh-Salterton, on the South coast of Devon, situated on the Otter, having Sidmouth on the East and Exmouth on the West, and by the aid of temporary residences at Dawlish and Plymouth, I have been enabled to complete my examinations of nearly the whole length of the sea-board of Devon. Many of the former inhabitants of the deeper and more inaccessible parts of the Channel now also repose in the drawers of my cabinet, the result of many pleasant and long-to-be-remembered dredging excursions, in the society of one who for a period of sixteen years has almost identified himself with these coasts, and whose boat, dredges, and his still more valuable services through many a long summer's day, have done much towards any merits that these elucidations of the mysteries of the sea may possess.* In forming a Fauna of a line of coast of many miles, consisting of varied features, the difficulty arises as to the best method of bringing the facts into order. There are two methods; one, the progress of a tour through a country in the manner it is undertaken; and the other according to the classification of Zóology, as Zoophytes, Mollusca, &c. Each plan has its own peculiar advantages; but as I prefer the second, as requiring the least repetition, I will give a preliminary description of the general outline of the coast of Devon, from the vicinity of Lyme Regis to the commencement of the Cornish coast.

Shortly after leaving Lyme Regis, in Dorsetshire, the blue lias begins to disappear, and on arriving at the small watering-place of Seaton the chalk and green sand make their appearance: the Axe here loses itself in the sea. On the opposite side of the river is the fishing hamlet of Beer Regis; and its lofty cliff of chalk, known as Beer Head, is a striking headland, and is the last chalk to the westward. From hence to Sidmouth runs a long pebble beach of some miles, backed by cliffs of red sandstone and green sand intermixed, the cliffs presenting beautiful slopes to the South, and laid out in strawberry gardens; the cliffs rising all the way towards Sidmouth, where they attain their elevation in Salcombe cliff, which then descends rapidly to the valley of the Sid. Running up this valley is Sidmouth. The cliffs, now all red sandstone, again rise abruptly, and attain their elevation in the peak cliff. From the summit a rapid descent terminates in the beautiful and quiet little bay of Ladram, with its caves and rocky headlands, the favourite haunts of the cormorant and the guillemot. Most delightful and remunerative is it here on a fine day in summer, at low-water spring-tides, to examine the rock-pools, whether for sea-weeds, zoophytes or mollusks.

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* C. S. Harris, Esq., of Budleigh-Salterton.

From here to the mouth of the Otter the cliffs vary in height and are much weather-worn, the softer parts of the rock decaying, while the harder parts remain, leaving frequent holes in the face of the cliff: these holes are found very useful by the various winged inhabitants which during the breeding-season are numerous here, and add much to the interest of the locality. There are some deep pools near Brandy Head, from which I have obtained many good things. The next headland is Otter Point, which may be called the eastern horn of Salterton Bay, and Straight Point the western. Off Otter Point a high ledge of large rocks extends a long way out towards the sea, and is a lucrative spot to the collector: from here to Littleham Cove is a shingle beach, but which is sometimes productive in zoophytes after rough seas. Littleham Cove abounds in rock-pools of varied depth.

Slapton Sands is also an interesting place for the collector, and a few days may be most pleasantly spent at its comfortable hotel. The beach is of a peculiar nature, being composed entirely of small round quartz pebbles, about the size of beans, which are constantly being rolled up and down channel, not being able to pass round Start Point. A fine wild bay to the west of the Start, most accessible from Salcombe, and in which immense quantities of sea-weed are thrown up in rough weather, is well worthy of a visit.

The estuary of Salcombe next deserves attention, and, whether for its beautiful walks, its peculiar geological features, its natural productions, or the historical associations connected with its castle, or for all combined, the tourist, if possible, should bestow more than a passing visit, especially as comfortable lodgings are to be procured commanding pleasant views of the estuary.

Between here and Plymouth is Bigbury Bay, in which, a little way from the shore, is Burr Island, well known to the collector of Mollusca, and which is accessible from the shore at low water.

Plymouth terminates the Devonshire coast, and will be found an inexhaustible locality to the dredger, but the constant movements of steamers and sailing-vessels render dredging in a small boat anything but pleasant, and is at times even dangerous. From the Plymouth trawlers are to be obtained some good things, but they are a rough set of men and very mercenary, and have some extraordinary ideas of the value of what they bring, although without any reason, as on one occasion I had to pay them 10*s*. for the most worthless rubbish.

MOLLUSCA.—*Acephala Lamellibranchiata.*

Pholadidea papyracea. Perforating the red sandstone rocks of the South Devon coasts, at very low-water spring-tides. A good locality for them is eastward of Exmouth.

Corbula nucleus. The Warren, Exmouth, but not common.

Thracia pubescens. From the Plymouth trawlers.

Solen ensis. Common on the Warren, Exmouth.

Psammobia Ferroensis. On the beach, Dawlish, after easterly winds.

Tellina incarnata. Warren, Exmouth; rare.

„ tenuis. Warren, Exmouth.

„ fabula. Warren, Exmouth.

Donax anatinus. Beach to westward of Dawlish after easterly winds; at times abundant on the Warren, Exmouth; mud-sand by Otter mouth, Budleigh-Salterton, by dredge.

Mactra solida. Warren, Exmouth; Shaldon, Teignmouth, near low-water mark and by the ferry; also on Slapton Sands.

„ stultorum. At the mouth of the Otter, in mud-sand, not far from shore, and at times taken in the mackerel-nets; Budleigh-Salterton.

Tapes decussata. Teignmouth, by the Shaldon ferry.

„ pullastra. Not uncommon amongst the shingles, Exmouth, and also at times on the Warren.

Venus casina. Plymouth trawlers.

„ striatula. May be found on the Warren, Exmouth, and also to the westward of Dawlish after easterly winds.

„ fasciata. May be dredged in Salcombe estuary; bright-coloured specimens by dredge not far from shore, Budleigh-Salterton.

„ ovata. Salcombe estuary, by dredge.

Lucinopsis undata. On the Warren, Exmouth, and by the ferry, Teignmouth.

Cyprina Islandica. Plymouth trawlers.

Cardium echinatum. On the Warren, Exmouth, and the Slapton Sands.

„ Norvegicum. On the beach, Dawlish, after easterly winds; Budleigh-Salterton, in mud-sand, not far from shore, by dredge.

Kellia suborbicularis. Rock-pools to the east of Exmouth; in the bulbs of Laminaria bulbosa, Budleigh-Salterton; and frequently may be found between the dead valves of Pecten opercularis when they have become tightly bound together by Serpula.

„ rubra. Abundant in Lichina pygmæa, Ladram Bay and Littleham Cove, near Budleigh-Salterton.

Lepton squamosum. Fine, but not common, in clay, half a mile off Sherbrooke Lake, Budleigh-Salterton, by dredge.

Cyclas cornea. Ditches by Otter, Budleigh-Salterton.

Modiola barbata. To the west of Dawlish after easterly winds, but not common.

Crenella marmorata. Buried in the coats of Ascidians, small, but numerous on the beach to the west of Dawlish.

Nucula nucleus. Mud-sand off Budleigh-Salterton, by dredge.

„ radiata. Very large and fine-coloured off Budleigh-Salterton, by dredge.

Pecten tigrinus. Budleigh-Salterton Bay, by dredge, about a mile from shore in the coralline zone.

Pecten maximus. May sometimes be obtained in Exeter Market: they are also taken by the Brixham trawlers; also dredged in Salcombe estuary. Three of this fine mollusk were cast on the beach, Budleigh-Salterton, after a heavy winter's gale.

„ opercularis. Frequently cast ashore alive to the west of Dawlish; Slapton Sands, alive; the var. lineatus may be obtained from the Plymouth trawlers.

Gasteropoda Prosobranchiata.

Chiton fascicularis. Amongst the mussels, Langstone Cliff, between Exmouth and Dawlish and headland to west of Dawlish.

Chiton cinereus. Most abundant half-way between tide-marks to the west of Dawlish.

Chiton lævis. I obtained one specimen from Compass Bay, to the westward of Dartmouth.

Patella athletica. Littleham Cove, Budleigh-Salterton.

Acmea virginea. Attached to dead shells, Salcombe estuary.

Pileopsis Hungaricus. From the Brixham trawlers.

Calyptræa Sinensis. Salcombe estuary.

Emarginula rosea. Salcombe estuary.

Trochus zizyphinus. Littleham Cove, Budleigh-Salterton between tide-marks.

„ Montagui. Salcombe estuary.

„ tumidus. Salcombe estuary.

„ magus. May at times be found alive on the Warren, Exmouth, and also on Slapton Sands.

Phasianella pullus. This pretty mollusk may be found living and creeping over the sea-weeds in the rock-pools at Littleham Cove, but they are not very numerous.

Bithinia tentaculata. Ditches by the Otter, Budleigh-Salterton, common.

Valvata piscinalis. In ditches, with the above.

Rissoa striata. Abundant beneath stones in a large wild bay between the Prawle Point and the Start Point.

„ semistriata. From a mass of sponge or group of zoophytes (Crisidia), Budleigh-Salterton.

„ cingillus. Amongst the crevices of the rocks beneath the Hoe, Plymouth, not uncommon; Littleham Cove, rare; Salcombe estuary, not uncommon.

Rissoa Ulvæ. Most abundant on the stones and mud at the salt-pans by Mount Pleasant, between Exmouth and Dawlish; also on a grassy flat by the mouth of the Otter, in Bostrichia Scorpioides.

Aporrhais pes-pelecani. May at times be procured alive from the Warren, Exmouth; off Budleigh-Salterton, by dredge.

Aclis ascaris. Amongst the zoophytes from the Plymouth trawlers.

Eulima polita. Fine specimens off Budleigh-Salterton, by dredge, not far from shore.

„ bilineata. Middle ground off Budleigh - Salterton, by dredge.

Chemnitzia rufa. Rock-pools, Littleham Cove.

„ fenestrata. Plymouth Sound.

Odostomia Rissoides. Abundant amongst the mussels, Langstone Cliff, between Exmouth and Dawlish, and cliff to westward of Dawlish.

Odostomia truncatula. Plymouth trawlers, rare.

Natica monilifera. Frequently found alive on the Warren, Exmouth, and also to the west of Dawlish; also on Slapton Sands.

Cerithiopsis tuberculare. I obtained forty or fifty specimens from a small piece of red sponge dredged off Budleigh-Salterton.

Nassa reticulata. I have found a few alive on the beach, Dawlish.

Buccinum undatum. Frequently found alive on the Warren, Exmouth.

Mangelia purpurea. Off Budleigh-Salterton, by dredge.

„ linearis. Attached by a byssus to Sphacelaria washed up on the beach, Budleigh-Salterton.

Cyprea Europea. Common on the Warren, Exmouth.

Ovula patula. From the Plymouth trawlers.

Marginella lævis. Occasionally from the Plymouth trawlers.

Gasteropoda Opisthobranchiata.

Tornatella fasciata. The Warren, Exmouth.

Philine aperta. Common in mud-sand not far from shore, Budleigh-Salterton, and sometimes it may be found on the Warren, Exmouth.

Aplysia hybrida. In some seasons most abundant in Littleham Cove, near Budleigh-Salterton.

Pleurobranchus membranaceus. Exmouth and Salcombe estuary.

„ plumula. Exmouth.

WILLIAM F. TEMPLER.

Largs, Aberdeenshire,
August, 1854.

P.S. I am preparing a list of the Zoophytes of the coast, which I hope to have ready in the course of the winter.

Entomological Botany (with more especial reference to the Plants frequented by the Tineina). By H. T. STAINTON, Esq.

THE relation between plants and phytophagous insects is somewhat similar to that between geological strata and the fossils imbedded in them; we should laugh at the idea of a collector of fossils travelling about the country in search of them, yet totally uninformed as to the different strata in which they occur: nevertheless, hitherto little surprise has been evinced at the neglect which Botany experiences from entomologists, and, on the other hand, it seems surprising how rarely a first-rate botanist turns his attention to Entomology, though from his knowledge of plants he would start with an immense advantage in the race.

In 1791 Jaques Brez published, at Eltrecht, his 'Flore des Insectophiles,' being a list of plants frequented by insects, showing also the insects which frequented them: in the 'Isis,' 1846, Dr. Speyer and his brother gave a catalogue of plants used as food by Lepidopterous larvæ; but this also was a simple catalogue of names, and I am not aware that any writer has attempted this interesting subject in the mode in which I propose to treat it.

The plants are enumerated in the order in which they occur in Babington's 'Manual of British Botany.' Information concerning the larvæ of Noctuæ has been largely drawn from Guenée's 'Histoire Naturelle des Noctuelites.' European species not already detected in this country are here mentioned, provided the food-plant is a native, in which case the insect may be expected to be met with.

It must, however, be preliminarily observed that many larvæ are polyphagous, and some, such as those of the Sciaphilæ, to such an extent that it would be difficult to discover plants on which they do not feed: these must be left to the practical experience of the collector, since to enumerate the polyphagous species under each plant on which they feed would be a great waste of time and paper.

Clematis vitalba. Travellers' Joy.

A common plant on chalk and limestone, and growing in such masses that it is extremely probable the larvæ of several Micro-Lepidoptera feed on it. The reputed Nepticula larva on the leaves of this plant (see Zool. 3955) is now ascertained to be Dipterous. Speyer enumerates three of the Geometridæ as feeding on this plant,—Chlorissa vernaria, Phibalapteryx tersata and P. Vitalbata.

Thalictrum flavum. Common Meadow Rue.

An inconspicuous plant growing in wet fields, flowering in June and July. The singular Noctua, Calpe Thalictri, the sole European representative of an extensive exotic family, and which has not hitherto been noticed as British, is attached to this plant. The larva, reminding one of a Cucullia larva in shape and colour, feeds *à decouvert* on this plant, in May.

Anemone nemorosa. Wood Anemone.

So plentiful in woods (especially where the underwood has recently been cut down) and thickets; its white blossoms attracting the attention of the most unobservant in April and May.

From the time that Fischer-von-Röslerstamm figured on this plant the larva of Adela Degeerella, it has been thought to be an especial food-plant for that insect. This may, however, be doubted, the larva feeding, according to Fischer, on several low plants, and according to the observations of Lyonnet (published posthumously), more in the style of Incurvaria masculella and pectinea, on withered leaves.

Ranunculus. Crowfoot; Buttercup.

A numerous genus, of which a few species give the prevailing yellow colour to our hay-fields in summer; and an elegant one with white flowers is the ornament of many a little pool of stagnant water, in April.

Speyer gives Ranunculus bulbosus as a food-plant for Orthosia pistacina; but among the Micro-Lepidopterous larvæ, I am not at present aware of any specially attached to this genus: the polyphagous lively black larva of Sericoris lacunana may frequently be observed feeding on the flowers; and, as is well known, the perfect insect of Micropteryx Calthella delights to bask in the sun on the flowers of several Ranunculi.

A mining Dipterous larva (Phytomyza flava, *Meigen*) is excessively abundant on the leaves of R. repens and others, and is even specially mentioned in a Botanical work, Dr. Johnston's 'Terra Lindisfarnensis,' p. 28:—"The leaves are often marked with pale sinuous lines, which are produced by the burrowings of a caterpillar that finds a favourite food in their parenchyma."

Caltha palustris. Marsh Marygold.

Abundant in moist meadows, flowering in May. Frequented by the perfect insect of Micropteryx Calthella, but not at present known as the food of any Lepidopterous larva.

Aquilegia vulgaris. Columbine.

Not frequently met with in a wild state, but common in gardens. Speyer represents Polia dysodea and Boarmia crepuscularia as feeding on it.

Delphinium consolida. Field Larkspur.

In sandy or chalky corn-fields this beautiful plant occurs. The shark-like larva of Chariclea Delphinii feeds on this plant, in July: it is gregarious when young; it keeps near the top of the plant feeding on the seeds and green capsules: it is an extremely rare British insect.

Berberis vulgaris. Barberry.

Also an abundant garden plant. Speyer enumerates Ennomos illunaria, lunaria, and illustraria, Anticlea berberata, Triphosa certata, and Eupithecia exiguata as feeding on it. According to the observations of Tischer (in Treitschke) the larva of Gelechia Mouffetella (though most partial to honeysuckle) also feeds on barberry; and, according to Geyer's observations (also in Treitschke), the larva of the conspicuous Gelechia Scopolella, not yet detected in this country, feeds in June, between flatly united leaves of this plant.

Nymphæa alba. White Water-Lily.
Nuphar lutea. Yellow Water-Lily.

With the exception of the aquatic larva of Hydrocampa Potamogata and Nymphæata, no Lepidopterous larvæ are known to feed on these ornaments of our ponds and streams.

Papaver Rhæas. Common Red Poppy.

We are still unacquainted with any Lepidopterous larva attached to this plant; yet it seems probable there must be some which have escaped our observation.

Glaucium luteum. Yellow Horned Poppy.

The same remark applies to this as to the preceding; but we are so little acquainted with the productions of our maritime plants, that the non-observance of a Glaucium-eater is less remarkable.

Chelidonium majus. Celandine.

Speyer represents the polyphagous Euplexia lucipara as feeding upon this plant.

Corydalis claviculata. White Climbing Fumitory.
Fumaria capreolata. Rampant Fumitory.
Fumaria officinalis. Common Fumitory.

No Lepidopterous larvæ have been hitherto observed on these plants.

THE CRUCIFERÆ.

As the larva of Plutella cruciferarum feeds apparently indifferently on most of the species of this order, it is most appropriately mentioned before enumerating the individual species.

Cardamine Pratensis. Common Lady's Smock. (Bitter Cress.)

Frequented, when blooming in May, by the perfect insect of Adela rufimitrella. The common Anthocharis Cardamines probably feeds in the larva state on this plant, but it rather appears polyphagous with respect to several of the Cruciferæ, having been observed on C. impatiens, Turritis glabra, &c.

Hesperis matronalis. Dame's Violet.

Grown very commonly in gardens, and much frequented by the larva of Plutella porrectella.

Sisymbrium officinale. Hedge Mustard.
Alliaria officinalis. Jack-by-the-Hedge.

Both common plants, the latter being rather conspicuous in May, but neither is at present known as the special food of any Lepidopterous larva.

Brassica oleracea. Cabbage.

Best known in the form it assumes in the kitchen-garden, where it is frequented by the larvæ of Pontia Brassicæ and Rapæ (also according to Speyer, Napi and Daplidice), Triphæna pronuba, Mamestra oleracea, Brassicæ (and according to Speyer, suasa, and Chenopodii), Botys forficalis (and according to Speyer, Scopula margaritalis): many of these species probably feed also indifferently on the turnip.

Sinapis arvensis. Charlock Wild Mustard.

This plant which abounds to such an extent that it gives a uniform yellow colour to corn-fields, in May, is still unknown as the special resort of any Lepidopterous larva.

Draba verna. Common Whitlow-grass.

This elegant little harbinger of spring, so common on walls and dry banks, is not known as the food of any Lepidopterous larva: its white flowers begin to expand before the end of March.

H. T. STAINTON.

Mountsfield, Lewisham,
September, 1854.

(To be continued).

Extract from a Letter of a Gold-Digger.

By Edward T. Ingpen, Esq.*

Whatever good fortune the gold-digger may meet with, believe me he well deserves it. To say nothing of the separation of domestic ties and the want of the comforts of civilized life, and such like small matters, he is the victim of continual persecutions. Take Zoology as an instance; he is a martyr from day to day; he rises in the morning unrefreshed (I will tell you why presently), and the flies begin to pester him. Some blow the meat, others swarm into the sugar-basin (of milk the festive board is quite innocent), tumble into the tea, fly into his eyes, and not unfrequently into his mouth and throat, almost choking him, and thereby teaching the wisdom of keeping the mouth shut in a strange land. They torment him in every conceivable way during his walk to work through the bush, and until he dives into the depths of his hole, where—as the common sort do not venture far below the surface and confine themselves to vigorous attempts to effect a rapid descent of the digger by making him lose his hold of the sides or the rope—he hopes for a little peace: vain hope! deluded digger! A race of demons has lately sprung up in the shape of black flies, an inch in length, which buzz around him in the shades below, and sting or bite most confoundedly, even to the drawing of blood; and he may possibly find, if the hole be damp, a snake or two coiled up snugly in a corner; a circumstance which occurred only about a week ago. As the digger generally works at some distance from his tent, to save time he takes his lunch or dinner with him, and about mid-day "knocks off" to find a spot where, "*recubans sub tegmine*" gum-tree, he may enjoy it, but the deuce a bit of shade do the trees afford from the rays of the sun, the leaves are all vertical! However, he sits down, taking care not to do so on a nest of lively young scorpions, and his old enemies the flies are at him again. Presently the ants, red and black, come out to investigate his proceedings, staring at him with their big saucer-like eyes, in a way to make a timid man feel rather nervous. These beauties vary in size, from half-an-inch to an inch and a quarter in length, and are armed with formidable jaws, and a sting far worse than any wasp it has been my fortune to become acquainted with. I am no draughtsman; but, as well as my pen will take it, I send a portrait of an individual of the black species called or known here as the ***bull-dog ant.***[*] Well, the digger, after his day's work is over, goes home expecting to enjoy a comfortable evening after the annoyances of the day, and, supper over, composes himself with a soothing pipe. But this is just the time when the mosquitoes are getting lively, and the poor devil is at last driven to the recesses of his tent and blankets, where he thinks he may reasonably hope for a little rest, provided no attempt is made to stick him up by bushrangers, for whose benefit he takes care to lay his revolver under his pillow. Here again he is disappointed. There is a small insect, which in England sometimes haunts what should be the couch of repose, and those are happiest who have least acquaintance with it. The same murderers of sleep exist here, greater in size as might be expected, the climate being so favourable to animal life, but come not in single files or in battalions, but by *whole armies!* The poor exhausted digger wages war with these blood-thirsty miscreants, until, weary with toil and faint from loss of blood, he sinks into a troubled slumber. Presently a strange dog appears on the Diggins. This fact is at once noticed by some resident canine attached to a tent (every tent almost has its dog), the alarm is given, and soon the whole "flat" resounds with the most awful barkings and yellings which the canine throat and lungs are capable of producing. Roused by the noise, the digger, apostrophising the animals in no measured terms, waits, as patiently as he can be expected to do under the circumstances, until it subsides, and then sinks on his pillow once more. Soon the tinkle of an old tin-kettle is heard, and a horse, to whose neck it is chained and padlocked, comes snorting and champing around the tent, cropping the grass, stumbling over the tent-ropes, and almost pulling it down. And thus the night passes; often diversified by the pranks of the mice, who nibble everything in the shape of eatables they can find, and seem to consider the recumbant a sort of play-ground for them to scamper over at their pleasure. This is really no exaggeration. These nuisances, and many more which I could detail, we have suffered and do suffer from, daily and nightly. For my part I have had enough of Zoology in general, and Entomology in particular, to serve me for my life. Any charm the latter once had for me is among the things that were.

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* Our readers will be grieved to hear that that most estimable naturalist Mr. Abel Ingpen (who communicated these amusing extracts from the letters of his son) died of cholera, on the 14th inst.

January 23rd, 1853.—We have had heavy storms of rain and whirlwinds of dust—perfect sandstones, and the flies are enough to drive any person with a small stock of patience mad; I never suffered such annoyance from anything in my life. They get into the eyes, the nostrils and the mouth, and cling to the face with most villanous pertinacity, returning immediately after they are driven away. Meat is never safe from them: they will blow it if it be exposed but a few minutes, and they actually deposit the maggots living; indeed, if a blow-fly is killed, you may take the living maggots from their bodies. Then there are the ants, which may be found of all sizes, from the size of a pin's point to an inch and a quarter in length, and they both bite and sting—I say nothing of the B-flats and F-sharps, as we have none of them fortunately, but you can't go into a shepherd's hut in the bush without making a very speedy acquaintance with them. Oh, those flies! I have totally changed my opinion of my Uncle Toby. Instead of his being the benevolent Buffer I formerly innocently thought him, I can now see that he was a perfect misanthrope, a man actuated by the worst possible feelings towards his fellow-creatures for allowing the blue-bottle to escape. The only thing in which this country beats England is in the moonlight nights, which are certainly glorious, and I enjoy them the more from the cessation of the attacks of the flies. The mosquitoes I think nothing of; they are not numerous, and evidently don't like me.

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[*] Mr. Smith, of the British Museum, has obligingly named this insect Myrmecia pyriformis; the red one, before alluded to, is M. gulosa.

February 17*th*, 1853.—We come home from work about half-past five, dine and tea (it is but one meal), smoke our pipes and talk round the camp-fire or read, and then retire to roost, and, until lately, to sleep the sweetest sleep. That, alas! is not the case now, for we have recently had an irruption of F-sharps, which continue to murder sleep most effectually. I thought the flies bad enough in all conscience, but their annoyance lasted only until the evening, while the other wretches annoy us day and night,—positively my left arm is, in *appearance*, like one of my dear mothers' currant dumplings. I am really ashamed to tell you, my dear father, that I have rather neglected the capture of insects (excepting always the F-sharp's, which, as Bacon says, "come home to one's business and bosoms"), but I have not done so altogether. Fred. W. was taking an insect from a tree the other day, when a man, who saw what he was about, exclaimed, "Lord! I wouldn't touch one of them things for any money, you don't know what harm they may do you. There's a d—d thing here they calls a 'Triantelope,' haven't you ever seen it? It is a big spider, and if it bites you it will either kill you or makes you very ill." I suppose by his "Triantelope," he meant the Tarentella, which is said to be found in this colony.

April 10*th*, 1853. — Our old enemies the fleas are as pertinacious as ever in their midnight attacks, and rob us of a great deal of valuable slumber. We make frequent onslaughts on to them, but although we kill them by scores (we have positively killed as many as sixty in a day) they seem to be as numerous as ever — *I* spare none — considering that

The flea that bites and takes to flight
May live to bite another night;
Whilst he that 'twixt my nails is slain
Will never come to bite again.

August 10*th*, 1853.—I am sorry I did not send you some specimens of the sand-flies, which were so annoying at Melbourne in November last. The truth is, I never thought about it, and, happily for my comfort, I have seen none since. Insects generally are very shy at present, and it is very seldom that I can find any, but I make prisoners of all I see.

January 8*th*, 1854.—The insect tribes are now all alive, deuce take them, and the flies and ants do the utmost in their power to fill the lunatic-asylums by driving persons mad with their annoyances. Anything like it I never endured in my life before, and could never have formed any conception of: they are at you from before sunrise until sunset, and then come the mosquitoes, though I don't care for them, as they never attack me — probably I don't agree with them, — I only wish the fleas were of the same opinion. The ants swarm everywhere. One little black species is especially annoying, for they get into one's clothes and sting most unmercifully, and are always getting mixed up with one's food, which, as they smell most abominably, is not exactly agreeable. I am become almost a vegetarian; I live principally upon bread and cheese, rice and stewed apricots, for it is impossible to keep meat good, even for a day. I have bought meat at night, which has been just killed and quite warm, and, taking all the care I could with it, have found it the next morning a crawling mass of maggots!—Ugh!

Remarkable Anecdote of the Hedgehog. — Although the hedgehog has lately occupied more than a customary portion of attention in the pages of the 'Zoologist,' perhaps one other remarkable anecdote respecting it may not be uninteresting. At the edge of dusk I have several times during the last month perceived an individual of this genus busily employed in hunting for food on the turf in my pleasure-ground, but this day I was much astonished to find him similarly employed in the full glare of the noontide sun. It appeared to apply its snout repeatedly to the roots of the grass; in search, I presume, of worms, but without success. At length it met with a dead shrew, which it seized with great avidity, and, as I had a good view of it from behind a tree, without the possibility of its seeing me, I watched its motions with great attention: it repeatedly opened its mouth and pressed the shrew between its teeth, but without lacerating the skin: having been thus engaged for above five minutes it left the shrew, and retired about two yards from it. I then examined the latter, and found it much crushed, yet no part of it devoured; but when I approached the hedgehog, to my great surprise, I found it stretched out upon the grass in an almost inanimate state, and, although it crawled a few yards further, it died within an hour after its adventure with the shrew. Whether this took place in consequence of any poisonous quality in the shrew, or whether from want of other sufficient food, I will not undertake to decide. I merely state the fact as it occurred; but I believe, that neither dogs nor cats will eat the shrew.—*Oswald Mosley, Bart.; Rolleston Hall, September 15th,* 1854.

Occurrence of the Short-toed Lark (Alauda brachydactyla) *at Scilly.*—I have received the following interesting communication from Mr. Jenkinson, since his notice of the capture of the glossy ibis at Scilly:—

"September 20th, 1854.

"The bird (Alauda brachydactyla) corresponds in general description with the account given in Yarrell: the two central tail-feathers are lighter than the rest (which are dark brown), being olive-brown, the same colour as the scapulars and tertials. Irides olive-brown. Bill brownish along the top of the upper mandible towards the point; the rest white, tinged with brown. Whole length 6 inches. Bill, from gape, rather over $\frac{1}{2}$ an inch. Wing, from carpal joint, $3\frac{3}{4}$ inches. Tarsus $\frac{13}{16}$ inch. Hind toe and claw together $\frac{9}{16}$ inch. Legs and toes pale brown. The bird was observed among some bents growing on the sand a few yards from the beach, and appeared rather wild, and attracted attention chiefly by uttering a note that was unusual, as well as by its general appearance."

The bird was shot by Mr. Augustus Pechell, who has accompanied Mr. Jenkinson to the Scilly Islands.—*Edward Hearle Rodd; Penzance, September* 23, 1854.

Cuckoo's Eggs in Nest of Tree-Pipit.—Last May I found a tree-pipit's nest, containing five eggs, one of which was a cuckoo's. On finding the nest I had a strong suspicion that it was a tree-pipit's, not a meadow-pipit's. I removed all doubt on the subject by killing the bird from the nest. I mention this fact as neither Mr. Yarrell nor Mr. Hewitson include the tree-pipit among the birds in whose nest the cuckoo has been known to deposit its egg.—*E. C. Taylor; July* 23, 1854.

Occurrence of the Bee-eater in Essex.—A beautiful specimen of the bee-eater was shot in the garden of a mill close by the river's side, in the parish of Feeting, in this county (Essex), about Midsummer-day, which came into my possession, and is now at Mr. Harbour's, bird-stuffer, Reading, for preservation.—*Thos. Catchpool, jun.; Colchester*, 14*th of* 9*th mo.*, 1854.

Occurrence of the Glossy Ibis at Scilly.—I have just received information of the capture of the glossy ibis on Trescoe, one of the larger islands at Scilly. The bird was observed picking up food at the edge of a pool: it appeared to be very tame, and was made to rise with some difficulty: this appears to have proceeded from its great emaciation, the body being a mere bag of bones. My informant is John H. Jenkinson, Esq., who is on a visit to Mr. Smith, the Lord Proprietor of the Islands. He writes me that the plumage is immature, being that of a bird of the second year, the brown of the head and chin being streaked with white; upper parts of the plumage, including the tail, glossy greenish bronze, with faint purplish tints.—*Edward Hearle Rodd; Penzance, September* 19, 1854.

Amphipeplia involuta.—This, although given as a species in the splendid work of Messrs. Forbes and Hanley, is mentioned as being probably only a permanently deformed variety of A. glutinosa, a suggestion which is very probable, as we know how extremely liable all the Lymneæ are to be affected in form by peculiarity of situation. This supposition, however, is strengthened by the fact of an *involute* specimen having occurred among the ordinary form of A. glutinosa. Out of about 500 specimens taken this autumn some few have a more truncated spire than usual, and one has this part literally turned inside outwards; for instead of any spire it has a *deep* umbilicus, with the upper part of the outer lip projecting high above it. This local and periodical species has now been found near Norwich three separate times within the last ten years, and each time in a different locality. It has also been limited to a very small space in the ditch or stream where it occurs. It would be very interesting to know if any of the Irish specimens have been transferred to any other locality, and, if so, whether the form has been retained; and also whether any great variation in the shape occurs among them in their native habitat, and whether they may be obtained in every successive year. If any of the correspondents of the 'Zoologist' can furnish me with examples of these, I should esteem it a very great favour.—*W. K. Bridgman;* 69, *St. Giles Street, Norwich, September,* 1854.

On the want of some Systematic *Record of the New Additions continuously made to our Entomological Fauna.*—It must have struck many entomologists that, to be *au fait* with the present extent of our Entomological Fauna, one requires to have a distinct recollection of every scattered notice that has appeared of any novelty during the last ten or twenty years: this may not be a difficult matter for any one who has been attending closely to the subject during the whole time, and on whom each fresh discovery made sufficient impression to prevent its easily slipping from his memory: but take the case of a young entomologist now first beginning the study, and who procured for his guidance the last systematic work on the subject; conceive either a young Coleopterist taking Stephens' 'Manual,' or a young Lepidopterist Humphreys and Westwood for an infallible guide;—not being acquainted with other entomologists he has no resource but to obtain his information from books. After doing his utmost thoroughly to understand the work he is studying, and to obtain a clear perception of many points which the writers never thoroughly understood, he falls in with some older entomologist, who recommends him to get the 'Zoologist' as a *sine qua non*. Only too happy to hear that there is an inexhaustible mine of information, he obtains this invaluable treasure and reads it patiently through, from "The Siberian Mammoth" to the "Things hoped for" of Mr. Scott. He takes notes of the various new discoveries, but soon finds that this is not a very simple matter, nearly one-half of them being, at a later page in the 'Zoologist,' either corrected with the simple assertion that the writer was entirely mistaken, or else the fact that a new species occurred is left undisturbed, but the name by which it was first announced was erroneous. Why should not an annual *resumé* of the new species found, and new observations made in Entomology, be a feasible scheme? The captures of novelties are still recorded month by month, as of old, in the 'Zoologist;' but, at the close of the year, could not a small independent duodecimo be compiled, in which all these new facts should be arranged systematically? With reference to the TINEINA it is fully my intention to supply this vacuum, and I am bold enough to think of adding thereto all the new discoveries in the other groups of Lepidoptera. Those who are disposed to welcome this small addition to our literary lumber will perhaps communicate to me, *before the end of October*, notices of any new species they may have met with; and if collectors of other orders—Coleoptera, Hymenoptera, &c.—would add their contributions also, the little book might appropriately be termed 'The Entomologist's Annual.'—*H. T. Stainton; Mountsfield, Lewisham, September* 20, 1854.

Capture of Catocala Fraxini at Brighton.—On September 16th I was fortunate enough to have brought to me a specimen of Catocala Fraxini. It was taken on the previous day by a poor boy, on a scaffold-pole near Brunswick Square, in this town. He was playing with what he termed an "owlet," owing to which it is a little rubbed, but is nevertheless in very fair condition. It was in my possession before it was quite dead, through the kindness of Mr. Swaysland.—*John N. Winter; Sussex County Hospital, Brighton, September* 19, 1854.

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

September 4, 1854.—EDWARD NEWMAN, Esq., President, in the chair.

In the absence of the Secretaries, the Chairman appointed Mr. S. J. Wilkinson to act as Secretary for the evening.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'Papers and Proceedings of the Royal Society of Van Diemen's Land, Vol. ii., Part 2; by the Society. 'Fabricia Entomologica,' par H. Jekel, Part 1; by the Author. A paper entitled "On some Arctic Species of Calanidæ," by John Lubbock, Esq., F.Z.S. (from the 'Annals and Magazine of Natural History'); by the Author. 'Proceedings of the Royal Society,' Vol. vii., No. 5; by the Society. 'Journal of the Society of Arts' for August; by the Society. The 'Literary Gazette' for August; by the Editor. The 'Athenæum' for August; by the Editor. 'Resumen de las Actas de la Academia Real de Ciencias de Madrid, en el Ano Academico, de 1847 a 1848;' Idem, 1848 a 1849; 'Estatutos de la Academia Real de Ciencias;' all by the Royal Academy of Sciences of Madrid. The 'Zoologist' for September; by the Editor. 'Insecta Maderensia; being an Account of the Insects of the Islands of the Madeira Group,' by T. Vernon Wollaston, M.A., F.L.S.; by the Author. 'Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin im Monat Juni, 1853,' by Dr. Schaum; 'Hemiptera and Orthoptera from Mozambique,' forming part of the work of Dr. Peters on that country, by Dr. Schaum; both presented by the Author.

Old Series of the Society's 'Transactions.'

It was announced to the Meeting that, by a resolution of the Council, at the end of the present year the stock of the old series of the Society's 'Transactions' would be made up into volumes; and this notice was given that the Members might avail themselves of the interval to complete their sets.

Trade Museum of the Society of Arts.

It was also announced that the Council had resolved to present to the "Trade Museum" now forming by the Society of Arts such duplicate specimens of insects as could be spared from the Society's collection, especially of those which are injurious or beneficial to man, and a certain selection had been made; but in order to make the gift as comprehensive as possible, the Council requested the co-operation of the Members, by their giving such further specimens from their own collections as they may think proper.

Exhibitions.

Mr. S. Stevens, on the part of Mr. Evans, of Darley Abbey, exhibited a specimen of a new British Noctua, of which several had recently been taken in North Wales. According to Herrich-Schäffer's figure and description, it appears to be the Spælotis Valesiaca, *And. & Boisd.*, but it does not agree with Freyer's figure of the species.

Mr. Stevens also exhibited six specimens of Agrotis lunigera, likewise examples of Spælotis cataleuca, taken recently at the Isle of Wight. He also brought for exhibition a box of insects collected in the neighbourhood of Singapore by Mr. Wallace, which contained many new and interesting species both in Lepidoptera and Coleoptera: among the latter, the Longicorns were very beautiful, and bore much the larger proportion compared with the other families.

Mr. Bond brought for exhibition specimens of Acidalia degeneraria from the Isle of Portland; Orthosia hyperborea from Perthshire, observing that this species had hitherto been unique in the cabinet of Mr. Douglas; Noctua tenebrosa, also from Perthshire; and a specimen of Acosmetia caliginosa from the New Forest.

Mr. Edward Sheppard exhibited a box of Coleopterous insects, captured in the New Forest at the end of July and beginning of August, containing Phloiotrya rufipes, Platypus cylindricus, Elater sanguineus, Triplax ænea, Mycetocharus scapularis, Triphyllus bifasciatus, Salpingus ruficollis, and many others.

Mr. Hudson exhibited a hermaphrodite Polyommatus Alexis, remarkable for having the right wings ♀ and the left ♂, contrary to what usually occurs in such cases.

Mr. F. Smith exhibited specimens of Myrmica cespitum, ♂, ♀ and workers, only the ♀ and workers being hitherto known; Myrmica flavidula; a new species; and both the sexes of the true Bombus soroensis, taken from the nest. All these specimens were captured by him at Shoebury, near Southend.

Mr. S. Stevens, on the part of Mr. Oxley, exhibited a collection of insects, chiefly Coleoptera and Lepidoptera, made by him in South Australia: it contained many interesting species, and among the Lepidoptera were some fine examples of the families Tortricina and Tineina, and some cases of a large species of Psyche, composed apparently of pieces of a rush about an inch long, placed longitudinally and firmly cemented together.

Mr. Curtis exhibited specimens of the curious Acentropus Garnonsii from Glanville's Wootton, including the apterous female; also a large mass of white and very elongated eggs, supposed by Mr. Curtis to have been laid by the specimen exhibited, as they were found near her. Mr. Curtis presented two males for the Society's cabinet.

Damage to White Mustard-Crops by Insects.

Mr. Westwood read the following letter relative to a species of beetle (*Phædon Betulæ*) which had done great mischief to the mustard-crops near Ely:—

"Ely, August 29, 1854.

"Sir,

"The enclosed beetles are now ravaging the white mustard-crops in the Fens near Ely. They are so numerous that hundreds of thousands might be collected in a few minutes by shaking the stems over a newspaper. Having devoured the leaves, they then bark the stems and the seed-vessels (provincially called "coshes"). The effect of walking through the field where they are is very singular: as soon as the stem is jarred down they fall, and the noise so produced is like the rattling of shot or hail all around you. The crops appear to have approached maturity before they commenced their attack, otherwise they must have been wholly destroyed. As it is, the stems and seed-pods are stripped, and the seed becomes lean and of inferior quality. I have not heard the folks say they remember such a visitation before, although I apprehend the insect is a very common one.

"Mixed with the larger insects was the common turnip beetle, in the proportion of about 1 in 100. I observed that the brown mustard (*Sinapis nigra*), scattered as a weed throughout the crop, was also eaten in the same manner; but another cruciferous plant, the Erysimum cheiranthoides (which by the way is a very common garden and corn weed about Ely), was untouched. Will you kindly state what the insect is, and if it has been known to do the like before?

"Yours, &c.,
"W. Marshall."

Acarus on Hay.

Mr. Westwood then read the following letter:—

"Villiarstown, Cappoquin.

"Sir,

"Enclosed are some insects taken from the base of a newly made rick: they lie in a band of about 4 inches thick by 9 inches wide. The hay was off a reclaimed bog, after oats. There is also another rick close by, which is affected the same way. When first they appeared they were removed at once, but in one or two days after the rick was as bad as ever. I shall feel much obliged if you will let me know what they are, what should be done to the hay to get rid of them, and also whether it is bad for horses to be fed on such hay.

"I am, Sir, yours truly,
"A. E. Nichol."

Mr. Westwood exhibited a drawing of this Acarus, observing it was very similar to the common cheese-mite.

Habitat of Chelifer.

Mr. Westwood exhibited specimens of Chelifer, which had been found in great numbers in melon-frames and similar situations. Messrs. Walker and Curtis had likewise observed them frequently in such places, and the latter thought they fed upon minute insects.

Materials of Wasps' Nests.

The Secretary read the following letter from Mr. W. H. Watkeys, relative to wasps' nests, and specimens of the material alluded to were exhibited.

"Stroud, July 27.

"Sir,

"Seeing, in the report given in the 'Gardener's Chronicle' of your meeting, that a discussion arose as to whether wasps use the scrapings of solid wood in the construction of their nests, allow me to give an account of a little personal observation on the subject. I have several times observed wasps on and near beds of the dried stalks of stinging-nettles and similar substances, but till last Saturday I had not proof that they were used in the construction of their nests: I was passing near a hedge in which were numbers of these stalks, and about ten or a dozen wasps were hard at work biting off nearly all the outside of the dried nettles, and, the nest being near, I watched their coming to and fro, which I think was evident proof of the fact maintained by your Society.

"I am, Sir, yours &c.,
"W. H. Watkeys."

Mr. F. Smith observed that wasps sometimes do use solid wood in the construction of their nests, for he once had a nest of Vespa Norvegica for some months in his room, the wasps going constantly to and fro, during which period he noticed them frequently scraping and gnawing the outsides of his store-boxes, which are of deal, for building material. His room being a very dry one, he is confident it was the wood they used and not fungus, which could not have been found in such a place under such circumstances.

Beetles in Seeds of the Brazilian Wax Palm.

The following letter, from Geo. F. Wilson, Esq., was read:—

"Price's Patent Candle Company, Belmont, Vauxhall, London,
"August 22, 1854.

"Sir,

"A short time back a friend brought us, from Ceara, some seeds of the Copernicia Cerifera,—the wax palm of the Brazils, which yields the Carnahuba wax. While looking at the seeds yesterday, I perceived three live beetles among them. As the seeds are probably the first that have come to this country, the beetles may possibly be rare.

"Your obedient servant,
"Geo. F. Wilson.

"The Secretary of the Entomological Society."

Some of the seeds and the beetles above alluded to were exhibited: the latter proved to be Caryoborus Bactris, of the family Bruchidæ.—*S. J. W.*

TYNESIDE NATURALISTS' FIELD CLUB.

The Fifth Field Meeting, for the year, of this Society, was held at Alnwick, on Thursday, the 31st of August.

Only a small number of members assembled at the trysting-place, where they were met by Mr. G. Tate, who kindly conducted them over some of the many interesting places in Alnwick and its vicinity. The fine old church was first visited; its peculiarities of architecture and ornament admired.

Leaving its hallowed precincts, the party next visited the beautiful dairy-grounds of Her Grace the Duchess of Northumberland: here, as well as elsewhere throughout the grounds, the many-foliaged forest trees were most prominent objects, many of them, denizens of other climes, apparently flourishing as freely as if beneath their native skies.

Quitting this scene of enchanting loveliness, the Club proceeded to the Abbey-grounds; where, after examining that ancient building (which, like all of its class, lies in a beautiful well-sheltered situation), they proceeded up well-kept walks, by the borders of the river, and crossing which at the suspension-bridge were led onward by shaded paths to Hulne Abbey, with many a pause by the way, for examination or remark, as game, both great and small, winged its way or strolled across the path.

Refreshed by a little needful rest, most of the party returned to Alnwick, having arranged to look over the Duke's Egyptian Museum. An hour and a half spent pleasantly there brought the dinner, which was well served at the White Swan Inn.

After disposing of the usual loyal toasts, a notice was read of a rose-coloured pastor (*Pastor roseus*) having been shot at the Stelling, since the last meeting of the Club.

Mr. Bold read a description of a new Coleopterous insect (*Lathrobium carinatum*), taken on the banks of Irthing and Devil's Water, mentioning also some additions made to the insect Fauna during the day's ramble.

Diversified topics whiled away the evening "right pleasantly," and when the parting hour came each member took his departure, thinking, perchance, as he went, on similar cheerful gatherings to come.—*T. J. B.*

SOCIETY OF BRITISH ENTOMOLOGISTS.

September 6, 1854.—Mr. HARDING, President, in the chair.

Mr. Oxley, who has recently returned from Australia, wished to exhibit some insects he had taken during his sojourn in that country, but as this was a Society for the advancement of British Entomology only, he did not know that he should be in order by so doing.

The President observed that it was quite correct: this was a Society formed for the advancement of British Entomology only, but there was no rule forbidding the exhibition of exotic insects on extraordinary occasions such as the present, and therefore Mr. Oxley was perfectly at liberty to show the insects he had brought with him.

Mr. Oxley then exhibited several boxes of butterflies, moths and beetles, with some cocoons and pupa-cases. He likewise made some very interesting remarks on the habits of several species.

Mr. Dalmon observed that the sight of such beautiful and remarkable forms was enough to stimulate the Members of the Society to extend their energies to the collecting of exotic as well as British species.

Mr. Miller and several other Members made remarks on the extraordinary number of Vespa vulgaris this season, and said that at some of the railway-stations there was quite a battle between the passengers and the insects, which was very amusing to see. It was remarked by some persons that they (the wasps) were always numerous in a plentiful plum-season.

The President observed that he did not know that the plums had anything to do with it, but he had heard the remark before.

The President then exhibited the following insects from the coast of Kent:—Leucania littoralis and Luperina albicolon (this was the first time, he believed, these insects had been taken on that coast), Xylophasia sublustris, Spælotis cataleuca, Agrotis corticea and A. cursoria, Neuria Saponariæ, Dianthæcia carpophaga, Eremobia ochroleuca, Heliothis marginata and H. dipsacea, Plusia orichalcea, Aspilates citraria, Coremia ligustraria, Acidalia Persecaria, Limandra emutaria, Odontia dentalis (bred), Spilodes sticticalis, Pionea margaritalis, with others from the same place. He also exhibited some insects from Lytham, on the Lancashire coast: among these were Epunda Lichenea, alive, and some specimens of Spælotis præcox.

The President said he had seen a fine specimen of Sphinx Galii, taken near Kingsdown, Kent, by Mr. Thorne.

The President announced the following donation to the Society:—the third volume of 'Insecta Britannica,' from the Author, H. T. Stainton, Esq. A vote of thanks was passed on the donor.—*J. T. N.*

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ERRATUM.—Page 4469, line 1, *for* Eltrecht *read* Utrecht.

TO ENTOMOLOGISTS.

MR. J. C. STEVENS begs to announce that he will Sell by Auction, at his Great Room, 38, KING STREET, COVENT GARDEN, on Wednesday, the 25th of October, at Twelve for One o'Clock precisely, the Collection of BRITISH INSECTS of the late Mr. J. Truman, of Edwinstowe, Notts: it contains many rarities and others peculiar to Sherwood Forest, Two CABINETS and a few ENTOMOLOGICAL BOOKS. Also some COLEOPTERA just received from Borneo, collected by a Native Chief, some of which are new, and other kinds from India. Catalogues are preparing.

BIRDS' EGGS.

MR. J. C. STEVENS is instructed to announce for Sale by Auction, during the present Season, A COLLECTION OF EGGS, formed in Lapland during the past Summer, by John Wolley, jun., Esq., and containing some rare and well-authenticated specimens. Further notice of the Sale will be given.

38, *King Street, Covent Garden.*

JAMES GARDNER, NATURALIST, of 29, Great Marlborough Street, Regent Street, London, is now offering, at unprecedented low prices, a choice collection of BRITISH BIRDS and their EGGS, together with an extensive assortment of ENGLISH, SCOTCH and GERMAN INSECTS, not to be equalled by any Dealer in England.

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